

ONLINE DATA SHEET
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Absolute encoders
AFS/AFM60 SSI, Rotary

AFM60B-S1LA008192

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AFS/AFM60 SSI, Rotary

Model Name > AFM60B-S1LA008192
Part No. > 1060452



At a glance

- High-resolution absolute encoders with up to 30 bits (AFM60) or up to 18 bits (AFS60)
- Face mount flange, servo flange, blind or through hollow shaft
- SSI, SSI + Incremental or SSI + Sin/Cos interface
- Programmable resolution and offset (dependent on type)
- Connection system: M12, M23 connector or cable outlet
- Enclosure rating: IP 67 (housing), IP 65 (shaft)
- Operating temperature: -30 °C to +100 °C (depends on type)

Your benefits

- Programmability of the encoders means less storage, greater machine availability and easy installation
- Precise positioning due to high resolutions
- Large selection of mechanical interfaces and electrical contacting possibilities: Suitable for all applications
- Suitable for applications with limited space requirements (extremely short installation depth of 30 mm)
- Very good rotation accuracy due to increased bearing distance
- One programming tool and software with automatic encoder detection for AFS60/AFM60/DFS60

Performance

Max. number of steps per revolution:	8,192
Max. number of revolutions:	4,096
Resolution power:	8,192 x 4,096
Resolution:	13 bit x 12 bit
Error limits:	± 0.05 °
Repeatability (Ta not constant):	0.002 °
Measuring step deviation:	± 0.01 °
Measuring step:	90 ° elektrisch ⁄ Strichzahl
Initialization time:	50 ms [1)]

[1)] Valid positional data can be read once this time has elapsed

Mechanical data

Mechanical interface:	Solid shaft, Servo flange
Shaft diameter:	6 mm

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Mass:	0.26 kg
Start up torque:	0.5 Ncm (20 °C)
Operating torque:	0.3 Ncm (20 °C)
Permissible Load capacity of shaft:	40 N (axial), 80 N (radial)
Maximum operating speed:	9,000 /min [1]
Moment of inertia of the rotor:	6.2 gcm²
Bearing lifetime:	3.0 x 10^9 revolutions
Max. angular acceleration:	500,000 rad/s²

[1] Self warming of 3.3 K per 1000 revolutions/min when applying note working temperature range

Electrical data

Power consumption:	0.5 W (without load)
Operating voltage range:	4.5 V DC ... 32 V DC
Load current max.:	30 mA
Maximum output frequency:	600 kHz
Reference signal, position:	90 °, electronically, gated with A and B
MTTFd: mean time to dangerous failure:	250 a (EN ISO 13849-1) [1]

[1] This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 40°C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

Interfaces

Electrical interface:	Connector M23, 12-pin, radial
Interface signals:	A, B: digital differential, Clock +, Clock -, Data +, Data-
Clock frequency:	2 MHz [1]
SET (electronic adjustment):	H-active (L ≡ 0 - 1,5 V, H ≡ 2,0 - Us V)
CW/CCW (counting sequence when turning):	L-active (L ≡ 0 - 1,5 V, H ≡ 2,0 - Us V)

[1]

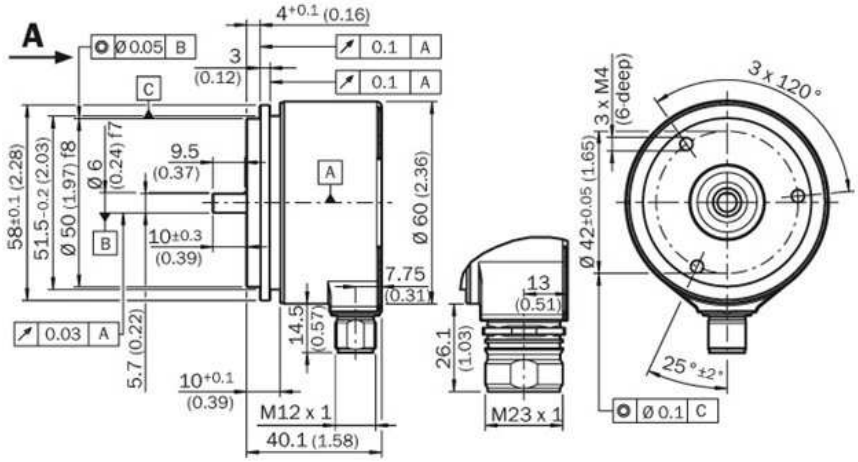
Ambient data

EMC:	(according to EN 61000-6-2 and EN 61000-6-3) [1]
Enclosure rating:	IP 65 (according to IEC 60529), shaft side, IP 67 (according to IEC 60529), housing side [2]
Permissible relative humidity:	90 % (condensation of the optical scanning not permitted)
Working temperature range:	-30 °C ... 100 °C
Storage temperature range:	-40 °C ... 100 °C, without package
Resistance to shocks:	70 g (according to EN 60068-2-27)
Resistance to vibration:	30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

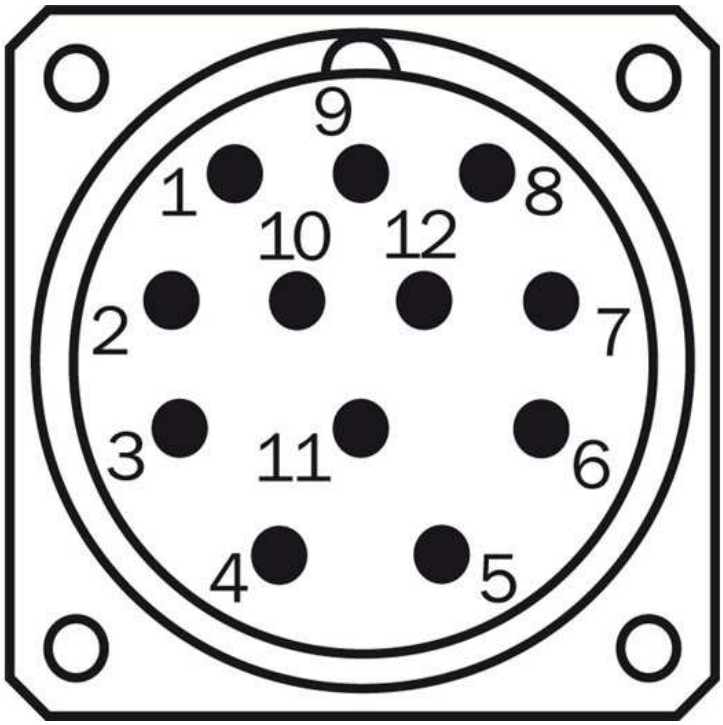
[1] [2] With mating connector fitted

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Dimensional drawing



PIN assignment



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